sary. All that is required is to receive the blood to be injected in a vessel cooled to a temperature of from 7° to 10° Cent., and to have a syringe cooled to the same temperature.

He relates several experiments made on rabbits bled to utter exhaustion by cutting the carotid artery and afterwards injecting into the jugular vein blood so cooled; in every instance revival was complete. He has not yet had an opportunity of trying this in the human subject, but he feels convinced that the result would be equally favourable.

16. *New Solvent for Phosphorus.*—Many attempts have recently been made to obtain a tolerably stable and agreeable preparation for the administration of phosphorus in pills. Mr. Gerrard, of University College Hospital, by using resin as a solvent, has greatly simplified the administration of phosphorus as a drug. We have before us a sample of the phosphoretted resin, which is bright, clear, and almost odourless and tasteless. The phosphoretted resin is prepared as follows:—

"Take a strong wide-mouthed, well-stoppered bottle, and weigh it; then melt a quantity of ordinary resin sufficient to fill the bottle; let the bottle be warmed, then pour in the resin to nearly but not quite fill the bottle, reweigh, and for every ninety-six parts of resin take four of phosphorus. Now observe that the resin is in a fluid state; if so, add the phosphorus, and fix the stopper tightly. Place in a sand-bath previously warmed, and apply heat to 200° C. or 392° F.; digest at this temperature, and shake frequently until the phosphorus is dissolved."

It is to be observed that care must be exercised not to ignite the phosphorus. The *Pharmaceutical Journal* of December 6, 1873, contains the details of manipulation. The resin may be then made into elegant and readily soluble pills, which appear coated, but which are not so. They are made thus:—

"Take of phosphoretted resin (4 per cent.), twenty-five grains; powdered white sugar, seventy-five grains; tincture of tolu, a sufficient quantity. Pulverize the resin, mix with the sugar, and form into a mass with tincture of tolu—eight to ten drops is sufficient; then divide into twenty pills; each pill will contain one-twentieth of a grain."

By numerous experiments we have found the pills to be chemically and therapeutically active.—*Lancet*, Feb. 14, 1874.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

17. *Blue Pus.*—The history of the origin and destiny of the various colouring matters of the living body has ever seemed to us a subject of interest, and one, too, which when fully investigated would probably prove, like other purely scientific investigations, rich in practical import. One of the most curious chapters of this history—should it ever be written—will undoubtedly be that one which refers to the appearance from time to time of a secretion of blue pus, and something closely allied to this—namely, the blue staining of dressings applied to wounds and even healthy surfaces. It is probable that these are not identical, nor is the cause of the blue staining apparently always the same; but it is a curious fact that this sometimes becomes epidemic, as was the case not very long ago in M. Gosselin's wards in the Charité at Paris.

Cases are on record where various normal secretions have become blue. Thus, sweat, milk, and urine have all appeared of this colour, whilst sometimes green has been substituted for it. As far as physiology is concerned, two sources are indicated. One of these is the hæmoglobin, which would seem to be the source of almost all the colouring matter in the body; and the other is a waste product found in the urine, and which is termed indican. Hæmoglobin, when it has escaped from the vessels, tends to undergo certain changes familiar to us in the varying colours of a bruise, whilst something of the same kind occurs after death. But in an old clot it becomes converted into a crystalline body called hæmatoidin, and this hæmatoidin is identical with the red colouring matter of the bile. All who have watched the effect of nitric acid on bile know that one of the products of the chemical change assumes a green and afterwards a bluish tint; and as the action of nitric acid is essentially one of oxidation, a blue product may be normally intermediate between the colouring matter of the bile and the colouring matter of the urine, in which form altered blood-pigment is ultimately expelled from the body. Now, it is probably some peculiar condition of part or system which leads to this manifesting itself, either locally as blue pus or discharge, or generally in one of the secretions.

Various theories have been advanced to explain the blue staining of the dressings of wounds.

The theory recently most favoured is that of Lücke, who holds that the blue coloration is due to the presence of minute organisms which he calls vibrios, and which are capable of movement, spontaneous or otherwise; and in all probability this theory holds good in a certain number of instances—especially when the condition tends to become epidemic, and when dressings are not carefully attended to. It has been noted that these outbreaks—if we might so call them—are most common in hot, moist weather, and this, too, would favour the view adopted by most German authorities. In some instances, a blue colouring matter—pyocyanine, as it has been called—has been separated from the coloured discharges, but in too small quantities for anything like an analysis. Perhaps, however, the spectroscope might help us. Nevertheless, this pyocyanine in many ways seems to resemble indigo-blue, such as is sometimes found in urine. Indican is now known to be a normal constituent of urine, and if so is probably also to be found in blood-serum. Indican is colourless, but by decomposition—such as occurs in putrescent urine, or may take place in wounds in a peculiar condition—gives rise to the indigo-blue already spoken of. These facts may help us towards a knowledge of the origin of blue or green pus, for, with a blue colouring matter, even the slight yellow of blood-serum would be sufficient to impart to it a greenish tint. It is probable, however, from what has been said, that the origin of such blue colouring matters is not invariably the same; and as to their import we are still more ignorant. We have no doubt but that an inquiry into the various changes which pigments undergo in the living body would throw a flood of light on many difficult physiological and pathological problems.—*Med. Times and Gaz.*, Jan. 10, 1874.

[The *Archives Gén. de Méd.* for December, 1873, and January, 1874, contains an elaborate memoir by MAURICE LONGUET, on the blue coloration of the dressings of suppurating sores. His conclusions are as follows: There are three different kinds of blue coloration.

1st. The coloration resulting from the modification of certain humors—or true blue coloration.

2d. Coloration due to fungi—false blue coloration.

3d. Coloration due to a substance still unknown—false blue suppuration. For this last M. L. proposes the term *cyanochrose.* Its characteristics are as follows: It commences suddenly, and ceases in the same way; it appears on parts of the skin where there is a wound, and also those which are perfectly sound; its duration is very variable; it produces no modification in the local condition of the wound, or in the general health of the patient; its progress is very similar to that of erysipelas; it is sometimes epidemic; it occurs most frequently when the atmosphere is moist and warm and contains ozone, and during storms; its presence is a very favourable prognostic; its nature is still unknown.]

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18. *Differential Diagnosis of Melanuric Bilious Fever and Yellow Fever.*—M. BÉRENGER FERAUD read a note on this subject before the *Academie de Médecine*, 20th Jan. 1874. He observed that among the diseases which attack

Europeans in Senegal the melanuric yellow fever is interesting, both on account of its gravity and its possible confounding with yellow fever.

Melanuric fever differs from yellow fever in its etiology, its course, and its pathological anatomy.

The principal etiological character of melanuric fever is that the individual is the more liable to an attack of it the longer he resides in intertropical malarial countries; it is the reverse as regards yellow fever.

As to its course melanuric fever being a malarial fever presents the character of intermittence; this invariably is not the case in yellow fever.

The matters ejected from the stomach in melanuric fever are uniform, they are always yellow, tinged with green, and contain biliverdin; while in yellow fever the matters ejected vary according to the stage of the disease; during the last stage they are black or brown.

Melanuric fever recurs with greater and greater facility; a relapse in yellow fever is so rare that it has been sometimes denied.

There are no pathological lesions of the stomach in melanuric fever, the liver is large and hyperemic; the contrary is the case in yellow fever.

Finally he says that no quarantine is necessary to prevent the conveyance of a melanuric fever, while the reverse is the fact as regards yellow fever.—*L'Union Médicale*, Jan. 22, 1874.

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19. *Spinal Paralysis in Children and Adults.*—Since J. von Heine published in 1840 his *Observations on Paralytic Conditions of the Lower Extremities and their Treatment*, a special form of paralysis in children, the subject has been well studied. Heine's own investigations led him to assert a preponderating lesion of the gray substance of the cord; and this is confirmed by Cornil, Prévost, Vulpian, Clarke, Charcot, Joffroy, and Damaschino. According to these authors, the anterior columns of the cord seem smaller, and there is an atrophy or entire disappearance of some of the groups of the largest ganglion-cells. Whether this atrophy be primary or depend on changes in the vessels, is doubtful. In 1869, Cuming published a case of 'extensive paralysis from morbid condition of the cord, probably congestion;' being the history of a man forty years old, who, after cold from sleeping in the wet, had difficulty in walking, and at last could only move the right shoulder, though sensibility was undiminished. Involuntary contractions in the extremities and pain supervened, but he gradually recovered so far as to be able to walk slowly. In 1872, Duchenne de Boulogne described the disease by the name of "paralysie spéciale antérieure aigue de l'adulte, par atrophie des cellules antérieures de la möelle." The case by Dr. Bernhardt is given at full length, and well merits reading. An analysis of it shows a previously healthy man, who, perhaps a little exhausted by diarrhœa, but still feeling well enough, took a violent cold. In from forty-eight to seventy-two hours a palsy of both extremities came on, without any lesion of the sensorium, without spasms or any signs of fever. In a few days the paralysis was absolute, and remained so for months, to give place afterwards to a gradual return of active movements, at first in single groups of muscles, later in others. The affected muscles rapidly lost their electrical excitability, at least for the induced current, and became wasted and extended. The sensibility of the skin remained intact; nor were the conditions of nutrition affected, for appetite, sleep, the excretions, etc., remained as usual, and, though he lay on his back for weeks, there were no bed-sores. The muscles of the eyes, tongue, head, and respiratory organs were never affected; but the only other movements of which he was capable were slight ones of the right thumb, and of the left forefinger and thumb, with power to roll the arm slightly inwards. At one time a gradual insinking of the interosseous spaces of the backs of both hands was noticed, especially in the right between the thumb and the index-finger, and this was next seen in the under part of both thighs. Then the thenar and hypothenar eminences became hollowed, and the skin wrinkled over them. Four weeks after the beginning of the disease, the strongest possible *induced* current excited only feeble contraction in the muscles of the thumb and little finger, and mere traces of contrac-

tion in the deltoid and biceps and quadratus femoris, but the *constant* current had very different effects.

On reviewing the symptoms, the likeness to the spinal paralysis of children is manifest; but of course it must be remembered that the reaction of a child's organism on the disease must be very different from that of an adult. It is as certain that, on the outbreak of the disease in children, fever and convulsions may be absent, as that they are generally present. Clearly, too, the atrophy of the affected limbs is not compensated in the adult as in children, by growing of the bones and joints, for the time of growth has already gone past. But in one, as in the other, there is at first a generally spread weakness, which after days or weeks localizes itself in certain special muscular groups; in both classes the excitability of the affected muscles rapidly disappears, at least for the induced current; in both, the muscular atrophy causes deformities in separate limbs; and in both it is certain definite groups of muscles that are affected. In both, lesions of sensibility are absent, as also are bed-sores, and alterations in the excretions; but whilst in adults the four extremities are nearly always affected, in children it is oftener seen to be a palsy of one limb, or of the upper extremity of one side, with the lower one of the other side. The prognosis in both classes is decidedly favourable to life; but an opinion as to the complete recovery or the severity of a particular case will depend on the *number* and *functions* of the affected groups. Perseverance in electrical treatment is the only thing to be recommended. It would seem that the pathological conditions in the two are identical, though opportunities for *post-mortem* examination have been singularly rare. The French writers say that the disease in children is in the gray anterior columns of the cord, especially in the cervical and lumbar enlargements, which are the most altered, and in which the largest motor-trophic ganglion-cells are the seat of the chief changes. Duchenne, from the analogy of the symptoms, names the disease from a preserved identity in the pathological appearances. Gombault had an inspection where he found change in the anterior gray columns, and considerable atrophy of the large ganglion-cells, but only single nerve-tubes were without myelin and rich in nuclei. The muscles were beset with connective tissue, and the fibres which did remain were somewhat reduced in volume, often only empty sheaths of sarcolemma could be seen. The nerves to the muscles and the nerves-trunks, contained isolated spots occupied by connective tissue, which had long usurped the place of nerve-tubes.

In considering the etiology, a prominent feature is the fact of taking cold. Must the muscular be considered the primary affection, and that of the gray substance in the anterior columns only consecutive, brought on by long disuse of the muscles? Apart from those discoveries which, denying a single atrophy of the ganglion-cells, see in the participation of the bloodvessels an indubitable sign of true inflammatory affection of the gray substance, it is difficult to conceive that certain muscles or nerves in a circumscribed limit should all at once be severely attacked, whilst others which are still more exposed to the cold air (as the neck- and face-muscles), should decidedly escape. The symptoms somewhat resemble those of acute general paralysis, but the latter lasts only a few days, death following very rapidly from implication of the respiratory organs.

With this paper should be read one in the same journal by Dr. CARL WESTPHAL, on "Myelitis occurring disseminated or in patches (*fleckweise*)," by which he intends to designate those diseases of the cord where the myelitic process is spread irregularly over a large extent, so that sections made at different heights show different diseased portions of white and gray substance, with here and there healthy parts intervening. This form (which is very little known, and whose etiology is obscure) is different from the one usually seen, where certain sharply defined parts (as the anterior or posterior columns, etc.) are affected continously, it may be in their entire length. He gives two cases of varioloid, in the first of which, eleven days after the eruption and during the drying-up stage, paralysis of the bladder came on, on the twelfth day paralysis of the left, and on the thirteenth day of the right leg. There was found disseminated myelitis of the gray and white substances. In the second case, paraplegia came on a few days after the outbreak of the eruption, and here again disseminated myelitis of the gray and white substances, but especially of the latter, was found. It appears to Westphal that in some of the cases quoted by Damaschino, "spinal paralysis of children," a similar process has gone on in the cord as in the paralyses after acute febrile disease in adults; and to prove this, he gives the results of two *post-mortem* examinations made on children two years old, who were well-marked instances of "spinal paralysis." Clinically, it would seem that many of the cases quoted as spinal infantile paralysis have in fact arisen at the close of well characterized febrile affections; thus, *e. g.* in Heine's first case, after convalesence from scarlatina, in his seventh case during the fever; and similar instances are given by West and Damaschino. The question arises whether these are truly "infantile spinal palsy." Labordey, in his work on *Paralysie Essentielle* (Paris, 1864) expresses himself very strongly against confounding such with the secondary palsies after acute febrile diseases; but he gives no good ground for it, and appears to have misunderstood Rilliet and Barthez in some expressions which they used. Certainly, as regards the time of appearance of the paralysis after the fever, no difference between children and adults can be made out; nor again, have the intensity and duration of the fever anything to do with it; indeed it is curious how often in both the fever was mild and of short duration. Vulpian has often written on partial paralysis with atrophy of the affected muscles in adults after acute fevers; and, seeing that a similar pathological process has been found in a classical case of spinal infantile paralysis arising after an acute exanthem, by Damaschino, and by Westphal in adults after acute disease—the appearance being a diffused myelitis—there seems no ground for making any difference between the nature of the spinal complaint in chidren and in adults. Westphal was of opinion that the fact of the ganglion-cells participating in the lesion in the spinal infantile complaint *might* give some ground for difference between this disease and that of adults, in whom opportunities for investigating are very rare; but an instance given by Gombault, in which he found the ganglion-cells affected, seems to prove that the pathological processes are the same in both. Westphal's paper is accompanied by two lithographic plates, showing beautifully the different amount of "disseminated myelitis" in sections taken at different heights in the cord.—*London Med. Record*, Feb. 4, 1874.

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20. *Sclerema of New-Born Infants.*—Dr. Bierbaum terminates some interesting papers on this disease, with the following conclusions: 1. The physiological character of sclerema of infants has not been satisfactorily made out. The symptoms are sufficiently pathognómonic, but the essential nature of the disease is still obscure. Sclerema is located in the skin and subcutaneous fatty tissue, being generally localized and limited to certain regions of the body, its generalization being exceedingly rare. Accordingly as it is or is not accompanied by a serous effusion into the subcutaneous cellular tissue, we distinguish between œdematous and simple sclerema; but the œdema is only a secondary occurrence, the diseased condition of the skin and cellular tissue being the primary affection. 2. Pathological anatomy has contributed little or nothing for the elucidation of sclerema, the anatomical changes observed being much too inconstant to throw much light on the subject; and a good deal that is found is of a secondary rather than a primary origin. The serous and bloody effusions met with in the large cavities of the body are passive in their nature. 3. The preliminary symptoms have nothing very characteristic, the early diminution of temperature and the peculiar cry of the infant at most deserving attention. The induration of the skin and fatty tissue, the serous subcutaneous effusion, the low degree of the temperature of the surface, the icy coldness, the imperfect respiration, the sluggish and weak circulation, the feeble heart-sounds, and the peculiar cry, are pathognomonic symptoms of the disease. 4. Sclerema can scarcely be confounded with similar diseases, such as the erysipelas of new-born infants. The adipose induration of new-born infants is a cadaverous occurrence; and the sclerema of adults described by Thirial differs in its symptoms and in other respects from that of infants. 5. Lobular pneu-

monia, jaundice, and intestinal irritation are complications which are often met with. 6. The dispersion of the induration and the absorption of the serous deposit sometimes occupy a considerable time, but in most cases the disease is not of long duration. 7. In the etiological relation, foundling hospitals occupy the first line, and the age and constitutional debility are of high importance. Among other predisposing causes are premature birth, the cold time of the year, and anti-hygienic conditions. Cold is the immediate cause. 8. Sclerema of new-born infants is a dangerous disease, the mortality being high, especially in foundling hospitals; it is less in private practice. Death ensues on lethargy, pulmonary paralysis, or convulsions. 9. As external remedies, warm baths containing aromatic herbs, frictions with warm oil, and envelopment in wadding which is penetrated by aromatic vapours, are to be recommended. For internal remedies those of a restorative and strengthening character are indicated.—*Med. Times and Gaz.*, Jan. 10, 1874, from *Deutsche Klinik*, Dec. 20, 1873.

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21. *Relation between the Pigmentation of the Spleen and of that of other Tissues in Melanæmia.*—M. LÉON COLIN, Professor at Val-de-Grace, exhibited to the Hospital Medical Society a spleen taken from a subject who died of malarial dysentery contracted in Cochin China, and expressed his opinion relative to the manner in which, in such cases, the splenic pigment is diffused in the tissues so as to constitute one of the most remarkable lesions in melanæmia, in the two following propositions:—

1st. In malarial malanæmia, there is a migration of the blood pigment through the parietes of the vessels; the leucocytes are the active agents in this migration, facilitated, perhaps, by the energetic circulation during the febrile paroxysm and by the stasis which results in the smaller capillaries, the blood being charged with pigmentary granules. Melanæmia in man is a condition similar to that sought by experimenters who inject colouring matters into the vessels of animals to render the extravasation of leucocytes more appreciable.

2d. If the pigmentary coloration of leucocytes renders their migration appreciable in melanæmia, it seems reasonable to admit that this migration takes place without being perceptible in other morbid and perhaps in physiological conditions. It occurs in fact not only in certain local alterations of the vessels, as in animals in whose cornea or mesentery inflammation is artificially excited and where so numerous are the leucocytes which exude as to constitute purulent perivascular collections as demonstrated by Cohnheim; but further, this migration takes place in the normal condition without any alteration of the parietes of the vessels and through the whole circulatory system. The communication of the solid elements of the blood would thus be assumed by a more intimate and direct mode than is generally supposed. The importance of this fact, as regards the circulation and nutrition considered in general, may be then comprehended.

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22. *Artificial Production of Rickets and Osteomalacia.*—Dr. HEITZMANN, of Vienna, concludes, from some experiments which he had made, that the continuous administration of lactic acid to carnivorous animals is capable of producing rickets in young animals and osteomalacia in old ones, and that these two diseases are identical processes.—*Wiener Allgem. Mediz. Zeit.*, No. 45, 1873.

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23. *Treatment of Diphtheria by Cauterization.*—Dr. THIBAULT related, at a recent meeting of the Medical Society of Nantes, the particulars of an epidemic of diphtheritic angina, in which the employment of cauterizations with a solution of nitrate of silver was eminently successful. Dr. Thibault had made use of a solution containing five parts of water to one of nitrate of silver, which he applied to the diseased parts by means of a sponge, after having previously removed the false membranes. These cauterizations, performed with great care and energy, were renewed daily, or every other day, until the membranes became favourably altered, changing from the thick grayish membrane to a soft milk-white one. About three successive cauterizations were

employed in each case. Alum was blown on the parts or used as a gargle during intervals. Thus, out of 195 cases of diphtheria observed during the epidemic, there were only 38 deaths, 22 of which were due to the existence of croup. Eight cases of croup recovered, and out of 158 cases of diphtheritic angina there were only 7 deaths, notwithstanding the extreme gravity of the epidemic, as illustrated by the frequency of consecutive paralysis. It is needless to insist on the importance of the above figures. They show the valuable results of cauterization, which was so warmly advocated by Trousseau and Bretonneau, and which since has been much less employed. The use of these cauterizations is indicated, says Dr. Thibault, whenever the false membranes can be easily reached, and, consequently, can be destroyed or modified. They can be easily reached in the pharynx, and their extension downwards prevented. It is the difficulty or impossibility of reaching them when they have involved the larynx and trachea which explains the failure of cauterization of croup.—*Lancet*, Jan. 10, 1874.

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24. *Treatment of Diabetes Mellitus with Carbolic Acid.*—Drs. W. Ebstein and Julius Muller, of Breslau, have published in the *Berliner Klin. Woch.*, Dec. 8, 1873, an account of some observations on carbolic acid in diabetes, and though their facts are at present too few to warrant any decided opinion on the subject, yet they are worth recording, in order that others may repeat their experiments on a larger scale. These authors were led to make use of carbolic acid from *à priori* reasoning. Starting from the theory that many cases of diabetes arise from an increase in the ferment which converts amyloid substance into sugar in the liver, they conceived that substances which are known to arrest fermentation would be likely to diminish the formation of sugar. Prout, Griesinger, and Julius Vogel had all previously made trial of creasote (a body chemically allied to carbolic acid) in diabetes, and found it inert. Carbolic acid has several advantages over creasote as a drug. Its composition is definite, its odour pleasanter, and it can be taken in much larger doses. The carbolic acid was given dissolved in peppermint water, strength 1 gramme (=grains 15) to 300 grammes. This quantity was taken in three days—that is, about six to seven tablespoonfuls per diem.

The first patient was a working dentist, aged 46, who had shown signs of diabetes since October, 1872, after some family trouble. There was no hereditary taint, and he had had no previous illness. He had served seven years as a soldier. He was strongly built, but had in six weeks lost thirty-four pounds weight. Sexual power was much diminished. He came under treatment in February, 1873. His urine was on the average eight litres in the twenty-four hours; specific gravity, 1032; amount of sugar 2.86 per cent. On March 4th, after taking altogether two grammes of the acid, sugar had disappeared from the urine, and its specific gravity was 1013. His weight gradually increased from 173 to 185 lbs., and he ceased to attend at the end of July, all sugar being still absent, though there had been traces occasionally present in the interval. He returned on October 29th, complaining of his old symptoms, and was found to have about 2.25 per cent. sugar again present, but it disappeared as before on recommencing the carbolic acid. The patient had a mixed diet, and never a purely animal one, during the whole course of his treatment.

A second patient, a man aged 54, had had a mild form of diabetes eleven years, the sugar varying from 2.5 to 5 per cent. in the last few years. The disease was not hereditary. One sister died of some mental affection. He had been eight times at Carlsbad, with marked temporary diminution of the percentage of sugar, but soon after leaving it, it rose again to its former height. In May, 1873, he went as usual to Carlsbad, his urine then containing 5.75 per cent. sugar, and he left it in six weeks with only 1.43 per cent. He was immediately placed on the carbolic-acid treatment, and the dose gradually raised to half a gramme per diem, and on Sept. 2d the sugar had entirely disappeared. A previous trial of the acid before the visit to Carlsbad had entirely failed. This patient habitually adopted an animal diet. The authors give details of a third case in a man, aged 23, in whom the acid had no perceptible effect. The only case, therefore, on which positive stress can be laid is the first, and there the effects appear undoubtedly referable to the acid. The analogy of other drugs—for example, of bromide of potassium in epilepsy, the efficacy of which varies so much in different classes of cases—would lead us not to expect carbolic acid to act equally in all diabetic patients; but Drs. Ebstein and Müller certainly deserve the credit of showing that it is worthy of a more extended trial.—*Med. Times and Gaz.*, Jan. 10, 1874.

25. *Iodide of Potassium and Carbonate of Ammonia in the Treatment of Syphilis, Internal Aneurism, and Chronic Rheumatism.*—Sir JAMES PAGET was the first to call attention to the important fact that carbonate of ammonia greatly increases the therapeutic action of iodide of potassium. Mr. J. P. MCSWEENY states (*Brit. Med. Journ.*, January 10, 1874), that he has had extensive experience in the treatment of syphilis, and has tried it with the best results, and finds that five grains of iodide of potassium, combined with three grains of carbonate of ammonia, are equal to eight grains of the potassium salt administered in the ordinary way. The following case is a good example.

"John ——, aged 50, consulted me about a sore situated on his left arm. There was a profuse discharge from it, and the smell was intolerable. On asking him a few questions, I got the following history. He had been a married man, his wife having died a short time ago; he had no children. Some years ago he contracted syphilis, and was treated by mercury, pushed to excessive salivation. The secondary symptoms had been well marked, and the sore about which he consulted me was of eight months' standing. He consulted several surgeons, and could get no relief. I ordered him five-grain doses of iodide of potassium, combined with three grains of carbonate of ammonia. After taking a few tablespoonfuls of the bottle, the bad smell altogether disappeared, as a man told me who was sleeping in the same room; at first he could not bear the smell, but after taking a few tablespoonfuls of the bottle he could detect no smell. This man remained under my care for about a month, and in that short time was perfectly cured, and in very good health and spirits. I could publish five cases with almost similar results. I have also found it of the greatest service in the treatment of internal aneurism, by relieving the pain and helping to consolidate the tumour. Dr. Frerichs has recommended iodide of potassium in the treatment of the waxy liver occurring in syphilitic patients. I think that the preceding facts are well worth the notice of the profession; but I would caution medical men how they increase the dose of the iodide of potassium, for if the carbonate of ammonia be good, it will greatly increase the therapeutic action of the iodide."

26. *When and how to use Mercury in Syphilis.*—The *Lancet* for Jan. 17 and 31 contains a highly interesting paper read before the Hunterian Society, Jan. 8, 1874, on this subject, by JONATHAN HUTCHINSON, Senior Surgeon to the London Hospital.

The following are the author's conclusions:—

"That mercury is probably a true vital antidote against the syphilitic virus, and that it is capable of bringing about a real cure.

That, in practice, a good many cases are really cured by mercury; the cure being proved by the restoration to good health, and, in some cases, by renewed susceptibility to contagion.

That the probability of cure depends upon the stage of development attained by the disease when the remedy is resorted to, and upon the perseverance with which it is used.

That, in order to secure the antidotal efficacy of mercury against syphilis, it is desirable to introduce a considerable quantity into the system, and to protract its use over a very long time.

That ptyalism and other evidences of the physiological action of mercury, so far from being beneficial, are, if possible, to be carefully avoided, since they prevent the sufficiently prolonged use of the remedy.

That in cases in which the patient shows an idiosyncrasy peculiarly susceptible to mercury, the indication is to reduce the dose rather than to omit the drug

That it is impossible to begin the administration of mercury too soon, and that it should be resorted to without loss of time in all cases in which a chancre shows a tendency to indurate.

That many cases of indurated chancre, treated early by mercury, never show any of the characteristic symptoms of the secondary stage.

That in other cases of mercurial cure of the chancre, in which yet secondary symptoms do occur, they are usually milder than if allowed to develop without specific treatment.

That, when mercury does not wholly abrogate the secondary stage, it exhibits a remarkable power in delaying it.

That delayed outbreaks of secondary syphilis are to be regarded rather as proof that the administration had not been sufficiently persevering than that the remedy was not efficient.

That it is probable that the risk of tertiary symptoms is in ratio with the severity and prolonged duration of the secondary stage.

That there are some grounds for believing that the tertiary symptoms of syphilis are both less frequent and less severe in those who have been efficiently treated by mercury than in others.

That mercury, cautiously given, does not, in a great majority of instances, do any injury to the general health, and that its local inconveniences may usually be prevented.

That the doctrine of the real antidotal character of mercury, in respect to syphilis, ought to lead to much more prolonged administration of it, with the hope of destroying utterly all lingering germs of the malady.

That most collected statistics as to the duration of treatment and freedom from relapse are misleading and worse than useless, because usually the treatment was far too short to be effectual.

That it has not yet been proved that there are any special forms of syphilitic disease in which mercury ought to be avoided, although, as a general rule, it is acknowledged that it must be used with more caution in all forms which are attended by ulceration than in others.

That iodide of potassium possesses little or no efficacy against either the primary or secondary form of syphilis.

That the efficacy of mercury is often most signally proved in cases which have utterly resisted the action of iodide of potassium.

That it does not much matter whether mercury is given by the mouth, by inunction, or by the vapour bath, provided that, whichever method be selected, care be taken to avoid salivation, purging, etc.

That the doses usually resorted to for internal administration are, for the most part, too large, and thus often necessitate a premature discontinuance of the remedy.

That if one method of administration does not proceed satisfactorily, another should be tried; and that in no case of difficulty should the vapour bath be forgotten."

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27. *On the Treatment of Syphilis and some of its Local Manifestations.*—Professor Zeissl offers some observations on certain much disputed points relating to this subject. Since, he observes, there is such difference of opinion as to the relative advantages of iodine and mercury in the treatment of constitutional syphilis, while some believe expectant treatment, with suitable regimen, alone is required, it would be very desirable to examine the subject at the bedside in patients who have as yet undergone no anti-syphilitic treatment. This is, however, attended with considerable difficulty, whether in hospital or private practice. So strong a hold has the mercurial treatment obtained, both on the lay and the medical public, that on any sign being made of avoiding to put it into force there is the danger of being accused of the mere love of novelty, or of allowing the disease to make dangerous progress when it might have been speedily arrested. When the warmest anti-mercurialists must allow that in most cases there is no substance which will produce so rapid an improvement in the diseased appearances as mercury does in syphilis, it is not surprising that the patient gets tired of treatment by expectation when perhaps he per-

ceives no change in his condition for weeks, and contrasts this with that of some friend who, by means of mercurial frictions continued for a fortnight, has almost got rid of his cutaneous eruption. The same contrasts are observed in hospitals where different surgeons have cases of syphilis under their charge.

In spite of these difficulties, Professor Zeissl, having in private practice for some years succeeded in treating several patients without mercury, resolved to try the expectant and iodine treatment in some of the cases in his division of the hospital. Of these he specifies two cases in which mere expectation was resorted to, the regimen and diet being carefully attended to, and the patients' attention being diverted by frictions with yellow ointment or cod-liver oil. These frictions were continued during forty-five days without making the slightest impression on a papular eruption. For these were substituted, therefore, twenty grains per diem of the iodide of potassium; but as at the end of a week no improvement had occurred, and the patients wished to leave the hospital, mild mercurial frictions were resorted to. So rapidly did this improve matters, that in about ten days the patients were dismissed cured. Nearly a twelvemonth has elapsed, and in neither of them has any relapse occurred.

These and some similar cases convinced Professor Zeissl that expectant treatment was not suitable for the treatment of syphilides in hospital practice. He resolved to try iodine, and as the iodide was very dear he substituted the tincture of iodine, prescribing half a drachm to six ounces of water, and giving a tablespoonful night and morning. Most affections of the skin and mucous membranes, and changes in other textures consequent on syphilis, yielded to this treatment in from fourteen to forty-eight or fifty days. The pustular form offered most resistance, requiring mild doses of Zittmann's decoction. In severe iritis also mercurial frictions were employed in combination with the use of atropia.

From the various trials made, the conclusions arrived at were that preparations of iodine, under a suitable regimen, will disperse the early manifestations of syphilis, or so abate these that a small number of mercurial frictions complete the cure, which, not being followed by relapse, must be regarded as definitive. An early mercurial treatment will remove the initial symptoms more rapidly than iodine, but the consecutive symptoms quickly yield to iodine. Affections of the mucous membrane of the mouth and pharynx yield much more rapidly to iodine than to mercury, requiring at most sometimes slight cauterization. Syphilis is always found more obstinate in yielding in pregnant women, especially when it is contracted at the time of impregnation; and the consecutive symptoms are usually only completely cured after the uterus has discharged its contents. The iodine has therefore always to be continued after delivery, and in some cases has to be supplemented by a few frictions. It is remarkable that the iodine-acne and coryza are of infinitely less frequent occurrence under the use of the tincture of iodine than under that of iodide of potassium.

Iodoform is of great utility as a local application in torpid syphilitic ulcers (especially in indolent bubo), hastening the cicatrization of these when this had not been accomplished or was too long delayed under the use of nitrate of silver. Given internally (in doses of two or three grains daily, made into pills, with extract of gentian or quassia), the iodoform is also very useful in syphilitic neuralgia.

The two most dangerous enemies which have to be contended with in the treatment of syphilitic patients in the Vienna Hospital are scorbutus and hospital gangrene, evidently due to the bad air of the hospital and to the employment of the various utensils in common. Notwithstanding every precaution and the resort to the various disinfectants, the progress of hospital gangrene can be arrested only with the greatest difficulty. On closer examination of the patients attacked with it, they are usually found to be the subjects of pulmonary tubercle either of long standing or so rapidly developed as to threaten life. The actual cautery is little employed for this gangrene, as it usually proves of no avail, and much more benefit accrues from keeping the patient in a permanent bath. Not only is the propagation of the disease prevented by this isolation, but after from six to eight days of employment of the bath the sloughs separate and healthy granulations spring up. The transport of the patient into a purer atmosphere was attended in many cases with remarkable benefit.—*Medical Times and Gazette*, Jan. 31, 1874, and *Wienner Med. Woch.*, Nov. 15, 1874.

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28 *Large Doses of Iodide of Potassium in Aneurism.*—Dr. George W. Balfour exhibited to the Medico-Chirurgical Society of Edinburgh (Dec. 3, 1873) the morbid parts connected with two cases of aneurism, the subjects of which had both been repeatedly exhibited to the Society, while alive, as examples of the benefits to be derived from the use in such cases of large doses of the iodide of potassium. One of these patients, Peter Rice, had been under treatment for over five years; the other, James Wilson, for over six years; both of these patients had been very seriously ill when they first came under treatment, and both had received so much benefit from the treatment as to be restored to comparative health and strength, and enabled to obtain their own livelihood by manual labour, in the one case continued up to the moment of death, in the other up to within a few weeks of that event. The members of the Society had repeated opportunities of ascertaining for themselves the extent and reality of the great relief which these patients had obtained, and the cases of both of them had also been fully recorded, and these were now supplemented by the post-mortem history, which confirmed in a very remarkable manner a theory of the way in which the relief obtained was produced, which he (Dr. B.) had for some years looked upon as being most probable. Rice died suddenly in the summer of 1872, while at work in the Botanic Gardens here; he had a bad cough for a week or two previously, and the immediate cause of death was hemorrhage into the pericardium, the source of which was a very minute rent at a comparatively thin part of the aneurism just where it sprang from the aorta. The aneurism itself was the size of a small cocoa-nut, everywhere dense and firm-walled, except just where the rupture had taken place; it contained only post-mortem clots. Wilson died a few weeks ago in Ward V. of the Royal Infirmatory, where he had been for many weeks in broken health, weak-minded, and childish; he died from subperitoneal hemorrhage, the result of rupture of an abdominal aneurism; from the symptoms the hemorrhage was probably gradual. This man had originally an aneurism implicating the innominate, subclavian, and carotid arteries, forming a pulsating swelling in the neck as large as a good-sized kidney potato; under treatment this ceased to swell up or present any of the characteristics of an aneurism, but the arteries remained always somewhat larger than normal; the brachial pulse on the left side was almost imperceptible, whilst the radial pulse never could be felt. He also had originally an aneurism of the abdominal aorta the size of a small orange, situated in the lower part of the epigastric region; under treatment this tumour gradually ceased to present any of the characteristics of an aneurism, and could only be felt as a hard firm knot, apparently cured by fibrinous deposit within the sac. Three years ago he had a recurrence of his aneurismal symptoms, with a large pulsating tumour above the old hard knot; after a time this also became firm, was contracting, and bid fair to become as innocuous as the old one. When he returned to the Infirmary several weeks ago, complaining of the symptoms which continued till his death, the large abdominal aneurism, occupying almost the whole of the left hypochondriac region, was at first fluid, but seemed gradually to solidify under the influence of rest and treatment, but without any diminution in its size. After death the whole aortic system was found to be greatly atheromatous; innominate, right subclavian, and carotid arteries were thickened, and seemed somewhat larger than usual. The left subclavian was blocked by a firm fibrinous clot just where it passed out of the chest, the coats of the artery being contracted round it. The descending aorta gradually dilated, till after passing through the diaphragm, it developed into an aneurism the size of a large cocoa-nut, beneath which could be felt the firm hard nodule of the original aneurism. This case, during life, was thought to show that aneurism might become cured in two ways: first, by the contrac-

tion and condensation of its walls, so that it became simply a large dilated artery, still pervious; and, second, by the formation of clots within the sac of the aneurism, and their gradual condensation and contraction. The post-mortem appearances of Rice and of Wilson, so far as his innominate aneurism was concerned, proved that relief was certainly occasionally obtained in the first method; while the life-history of Rice and of Wilson's abdominal aneurisms was held to prove the occasional occurrence of relief from the second mode; but on examining the aneurisms after death, they were indeed found filled with clots, some of which were of some standing, but none were decolourized or fibrinous, while the hard nodule of Wilson's original aneurism was found to be owing to a calcareous plate developed in its walls. The post-mortem history of all these aneurisms, therefore, confirms the view that relief is obtained, not by clot-formation, but by the contraction and condensation of the sac, and that if coagulation takes place within it at all, it plays a comparatively unimportant part, depends upon the remora of the blood, and seems in no respect to be due to the action of the iodide of potassium. Dr. Balfour had seen one remarkable instance confirmatory of this fact, which also seemed to have an important bearing on treatment of aneurism by compression. In this case the man laboured under a large and very tense innominate aneurism projecting into the neck; he was just beginning to feel the good effects of the iodide when it suddenly ruptured, apparently into the outer coat; a large livid pulsating tumour the size of a child's head was formed in the neck, and lay beneath the man's chin, while a boggy pulsation could also be felt between the two first intercostal spaces. Fearing external rupture, Dr. Balfour sent for his colleague, Dr. John Duncan, to have galvano-puncture performed to prevent this catastrophe; by the time Dr. Duncan arrived all pulsation in the tumour had ceased, and at his advice nothing was done beyond continuing the iodide. By degrees the whole of the effused blood, which remained fluid up to the last teaspoonful for a period of about eight weeks, was completely absorbed; by this time all trace of the aneurism had disappeared, and the man was discharged. Some weeks afterwards he returned for inspection, appearing in admirable health, and without any return of his aneurismal symptoms. He subsequently took the command of a small vessel which belonged to himself, and he died suddenly in the course of last summer, probably from another aneurism, the arterial tissue in all such cases being very much diseased. These cases are all very instructive, and go to show, as far as anything can do so, that the remedial influence of the iodide of potassium is not produced by coagulating the blood within the sac, but first of all by its sedative action on the heart, which greatly diminishes the distensile force within the sac, thus permitting it to contract; and, second, by some peculiar action on the fibrous tissue, by which the contraction of the sac is aided, and its walls are strengthened and condensed. In his earlier paper on this mode of treating aneurism, Dr. Balfour pointed out that the iodide of potassium could never be regarded as a perfect cure for aneurism, except under the most exceptional circumstances, but that it was a palliative which could be safely employed even in the most hopeless cases, while even in them it relieved suffering and prolonged life. These results were of great importance, and were unquestionably due to the iodide itself, though their production might be aided by adjuvant treatment. A very interesting case had occurred to him lately, which showed this very clearly: the patient had been for some time under a different treatment without relief; his main symptoms were a remarkable vox anserina, with compression of the veins coming from the head, so that he had constant headache, flushed face, etc.,—all the symptoms of cerebral congestion; under the use of the iodide in twenty-grain doses, without other treatment, all these symptoms were so much relieved, and even his voice so much improved, that the last time he was heard of he had almost ceased to think himself ill.—*Edinburgh Medical Journal*, January, 1874.

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29. *Successful Treatment of Aneurism by Position and Restricted Diet.*—A paper on this subject, illustrated by cases, preparations, and drawings, was read before the Royal Med. Chirurg. Soc., Dec. 9, 1873, by JOLLIFFE TUFNELL, Vice-Pres. Royal College Surg., Ireland. The cases were:—

1. Aneurism of the abdominal aorta, cured in thirty-seven days. The patient, a male, aged thirty-one years, was a shipwright by trade. Died from albuminuria five months after consolidation of the contents of the sac.

2. Aneurism of the abdominal aorta, cured in twenty-one days. The patient, a male, aged seventy-eight years, was a pensioner from the army. Died three years subsequent to recovery, from old age and general decay.

3. Aneurism of the popliteal artery, cured in twelve days. The patient, aged thirty-seven years, was a trooper in the Royal Dragoons, and is still serving in that regiment.

Mr. Holmes thought that for the future the statistics of aneurism would be somewhat altered, since, as Mr. Tufnell has shown, cases can be cured by rest and diet alone. He could not say from his own experience that rest and diet cured; he had attempted it in many cases, but had been disappointed. Aneurism was commonly met with in broken-down debilitated subjects, suffering from kidney disease; and though this treatment was carried as far as possible, yet it was not successful. This did not contradict what Mr. Tufnell said, who stated that he had fourteen or fifteen cases thus cured. Mr. Luke's case was parallel to Mr. Tufnell's case of popliteal aneurism, and he thought it would be well for surgeons to consider, before operating, the behaviour of an aneurism under rest and diet. He had had a case under his care which was cured in two days by simple flexion; he thought it would have got well under rest alone. Such cases depended upon a slight lesion of the artery, and if the patient rested he would recover. Rest and position should always be tried before operating. The rapidity with which surgeons resorted to surgical treatment in abdominal aneurism surprised him. Three deaths had occurred in London hospitals from pressure to the abdominal aorta. The prolonged use of chloroform was very dangerous, and much pressure could not be applied without endangering other organs. Mr. Tufnell deserved the thanks of the profession for calling attention to the use of simple rest and diet for curing aneurism.

Mr. Tufnell stated he had not selected his cases, nor had he refused any case. He had had fourteen cases successful out of eighteen. If a patient had an aneurism from the front of the vessel, and had a fibrinating power in the blood, he was successful. If a man got discontented after so many days, and went out, that could not be called a case. His plan in no way interfered with other treatment afterwards. He did not think that compression, if properly applied, interfered with ligature afterwards. The success of the treatment depended upon its being carried out systematically; he had endeavored to imitate nature, so as to have a spontaneous cure.—*Lancet*, Dec. 20, 1873.

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30. *Pleural Effusion successfully treated by Pneumatic Aspiration.*—Dr. Jas. P. Bramwell reports (*Ed. Med. Journal*, Feb. 1874) three cases of this, and remarks, the general reluctance to draw off a pleural effusion has been based on two fallacies. First, that medical means are in general quite equal to the disposal of the intrathoracic effusion; and, second, that paracentesis thoracis is a very dangerous operation. So far, however, from chest effusions of any magnitude being removed by medical means alone, there is a growing conviction that the opposite is the case, and that the majority of such cases will resist the power of all medicaments combined. Be the cause what it may, a largely distended pleural cavity disposes of its fluid contents very slowly, if at all. Patients in this condition are liable to many dangers, immediate and remote, and often die in a very sudden manner; a twisted aorta or plugged pulmonary artery showing but too plainly what pent-up fluid can do. Besides all this, it is well known now how often a pulmonary phthisis grows out of a neglected empyema treated on the expectant system. There is also another danger, even although the fluid is removed by slow absorption; the lung is often rendered more or less useless by permanent adhesions. We have seen a whole lung compressed into the size of a small orange, and rendered utterly functionless by this cause alone. As to the second fallacy—namely, the great danger of paracentesis thoracis—there can be little doubt that this has been greatly exaggerated. As formerly performed by a large trocar and canula alone, the benefits of the operation were more restricted, and its dan-

gers increased, but even this was surely preferable to death from sudden asphyxia. We are greatly indebted to the noble Trousseau for the heroic way in which he pleaded for the performance of this operation, and laboured to lessen its dangers by his valve of goldbeaters' skin; and now his distinguished pupil, Dr. Dieulafoy, by calling in the aid of the aspirator, has perfected the procedure.

It would be unjust, however, not to mention what we owe to Dr. Bowditch, as having long used the aspirator on the other side of the Atlantic; as also the praiseworthy efforts of Dr. Allbutt, of Leeds, to rescue from oblivion paracentesis thoracis, by showing the great merits of tapping in both pleural and pericardial effusions.

There is sufficient evidence now to prove that the pneumatic aspiration of intrathoracic effusions is an almost harmless operation. To subject our patients, then, to blistering and mercurialization, with all its attendant evils, with a simple appliance such as this at hand, is simply barbarous. Let the operation be early performed, and do not let us allow the continuance of the symptomatic fever to prevent us, for it has been proved that the removal of fluid, even in such circumstances, can be achieved in some cases at least by one tapping, and that with a rapid diminution of the general pyrexia.

There can be little doubt that, with such facts before us, paracentesis thoracis by pneumatic aspiration will become a very common operation, and if so we shall hear less frequently of deaths from pleurisy. For how, we ask, can this affection, if uncomplicated, kill at all, unless by the effects of effused fluid?

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31. *Cholera treated by the Hypodermic Injection of Hydrate of Chloral.*—Mr. F. W. HIGGINSON reports (*Indian Med. Gaz.*, Jan. 1874) nineteen cases of this, of which eighty-nine per cent. recovered. Seven of the cases were in intense or severe collapse, of which two died and five were cured. Seven were in mild collapse, all were cured; in the remaining five collapse was warded off. The hypodermic injection was the sole treatment employed, the patients were supplied with cold boiled water to drink *ad libitum*; they were nearly all exceedingly poor, living in wretched huts. During their convalescence, the only nourishment they could afford was a very limited quantity of milk. The immediate beneficial effects of the remedy cannot be better described than by the expression so often used to me by my patients, "I feel more life in me." No ulceration whatsoever occurred where the injection had been made; a slight sensation of pain and hardness were all that resulted.

We quote one of the cases.

September 21st.—Woman, æt. 20, duration of attack four hours—in intense collapse, urine suppressed, pulse imperceptible, severe cramps and abdominal pain, respiration much oppressed, breath cold as ice, very restless, and sighing frequently; injected 25 drops in left arm once and in right arm twice; half an hour after 25 drops in left arm; an hour after 25 drops in the inside of each thigh; after the last the cramps ceased, the woman turned on her side, and slept for a short time, pulse perceptible at wrist; an hour and a half after injected 25 drops in right arm, this was about 2 o'clock in the afternoon; at 7 o'clock in the evening the woman was much improved, and had a good pulse. 22d.—Slept during the night, no urine yet; injected 25 drops in left arm. 23d.—Passed urine twice during the night, and from this time rapidly recovered. 25th.—Cured. This was a most satisfactory case; when I first saw the woman I despaired of her recovery.

The solution used was one part of chloral hydrate in ten of water.

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32. *Treatment of Chronic Dysentery by Milk-Diet.*—According to Dr. CLAVEL's experience, milk, from its nutritive properties, may be used efficaciously to combat the anæmia and debility (often extreme) of dysentery. It favours also the cicatrization of the lesions (often profound) of the intestine. Asses' milk, which is lighter than that of the cow, and which contains less butter, is the most suitable to dysenteric patients, who have at the same time a hepatic lesion, because in this latter case the bile, which plays so large a part

in the emulsion of fatty matters, is secreted and passed out into the intestine in less quantity. The milk may be administered pure, or with a little lime-water added to it, in order that it may be better supported by the stomach, or it may be diluted with a little water. We should commence by causing about a pint to be taken in the twenty-four hours, and carry the quantity at the end of some days up to three or four pints. One or two days after the commencement of the milk-diet, the diarrhœa may be observed to become more considerable; but at the end of a few days, the constipation is so pronounced that it is necessary to have recourse to an oily injection.—*Lond. Med. Rec.*, Dec. 31, 1873, from *L'Union Médicale*, No. 122, 1873.

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33. *Treatment of Chronic Rheumatism by means of Very Hot Baths.*—Prof. LASÈGUE extols this mode of treatment. He places his patient in a bath of 36° (97° Fahr., nearly), a temperature perfectly supportable, and during the period of remaining in the bath, which ought not to exceed ten minutes, warm water is to be added until the temperature reaches 38° to 40° (104° Fahr.). If the patient suffers from headache, cold water compresses should be applied to that part.

The next day, or the day after, we should commence with a bath of 37°, and the temperature of it increased to 40° or 42°. Afterwards, successively, a temperature of 46° is reached, which should not be exceeded, though patients will sometimes tolerate easily a temperature of 48° (a little more than 118° Fahr.).

M. L. has at this time in his wards a young female with numerous articular pains and rheumatic sciatic neuralgia, who, after four baths, which she supported without fatigue, is now perfectly relieved.

M. L. quotes many cases of patients almost entirely deprived of the use of their limbs, who completely recovered their use by this simple means.—*La Tribune Médicale*, Feb. 22, 1874, from *Moniteur Thérap.*

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34. *Treatment of Acute Rheumatism by the Immovable Apparatus.*—Dr. W. ŒHME has made some comparative observations which satisfy him that the application of the immovable apparatus lessens the pain, the fever, and the duration of inflammatory rheumatism. He gives a table of 45 cases treated by the usual method and of 45 treated by the immovable apparatus.

The pain ceased almost always a short time after the application of the apparatus. In the severest cases, the pain ceased in about three days. The articulations in which the pains persisted longest were those to which it was most difficult to apply the apparatus. Thus, of 226 articulations affected, 45 ceased in about half a day; 63 between the first and second day; 38 in the third day; and the only cases in which the pain continued more than 30 days, were in the hip, shoulder, and fingers. Furthermore the mean duration of the pain in cases treated by rest is reduced eight days, and of the fever three days. In two cases the pain ceased immediately after the application of the immovable apparatus. Again, he thinks that the risks of cardiac complication are lessened by the treatment by rest. The author has seen but 15 cases of cardiac complications, most of which existed when the patient was admitted into hospital.

A table is given showing the age and sex of the patient, the articulation affected, the complications, treatment.—*Revue des Sciences Medicale*, Jan. 1874, from *Archiv der Heilkunde*, No. 5, 1873.

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35. *Microscopic Characters of Atmospheric Dust.*—Dr. D. DOUGLAS CUNNINGHAM has undertaken some investigations, in the neighbourhood of Calcutta, in order to ascertain whether any connection could be established between the microscopical characters of the organized particles found in atmospheric dust and the prevalence of epidemic diseases.

The following are his results:—

1. That bacteria "can hardly ever be detected among the constituents of atmospheric dust," but "are frequently to be found amongst the particles deposited from the moist air of sewers." 2. That "the addition of dry dust

which has been exposed to tropical heat, to putrescible fluids, is followed by a rapid development of fungi and bacteria, although recognizable specimens of the latter are very rarely to be found in it while dry." 3. "That spores and other vegetable cells are constantly present in atmospheric dust, and usually occur in considerable numbers. The majority of them are living and capable of growth and development." 4. That no connection can be traced between the number of organisms present in the air, or the presence of any special form of organism and the prevalence of any epidemic disease. 5. That the amount of inorganic and amorphous particles suspended in the air is dependent on the moisture of the atmosphere and the velocity of the wind, but that these conditions do not influence the number of organized particles.

The research is important, as affording evidence more decided and more positive than any which has yet been published, (1) that atmospheric dust consists largely of organic forms (in contradiction to the assertions of the French heterogenists), and (2) that these forms are almost entirely those of spores of fungi. The most important results bearing on pathology are, first, the additional proof given that bacterial matter can be carried in the air in such a state as to determine the contamination of liquids capable of supporting bacterial life, even when the air is much drier than it ever is in Europe; and secondly, the confirmation which it affords of previous observations, that bacteria exist in atmospheric dust so sparingly that in general they cannot be detected.—*London Med. Record*, Jan. 14, 1874, and *Appendix to Ninth Report of the Sanitary Commissioner with the Government of India.*

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36. *Purpura Urticans produced by Inhalation of Friar's Balsam.*—Dr. TILBURY FOX relates (*Lancet*, Feb. 7, 1874) a curious case of a man who had suffered from dyspnœa for which he had been advised to inhale the vapour of a drachm of Friar's Balsam two or three times a day. Soon after doing this the eruption came out all over his body, causing severe irritation of the skin. The case is clinically interesting in connection with the similar effects of copaiba and other balsams upon the skin.

SURGICAL PATHOLOGY AND THERAPEUTICS AND OPERATIVE SURGERY.

37. *Necrosis of Bone.*—The frequency of this affection may be readily explained, according to Prof. HEINCKE, of Erlangen, by the fact that bone derives its blood-supply only from the vessels of the periosteum and the medulla, and that the vessels supplying the medulla first pass through bone. Any disturbance of the nutrition and of the circulation in the periosteum and marrow must thus exercise very great influence on the nutrition of bone. Necrosis would not be met with so frequently, if bone, like the soft parts, were capable of undergoing molecular degeneration. As this is not the case, many morbid processes which, in soft parts, result in suppuration or granulo-fatty degeneration of the tissue-elements, lead in bone to necrosis. The anatomical differences between spongy and compact bone, such as the greater supply of anastomosing blood-vessels in the former, and also the abundance and the regular distribution of the medulla, render it intelligible why necrosis occurs more frequently in the latter than in the former.

There are many causes which alter the nutrition of bone to such an extent as to give rise to necrosis.

In the first place, injuries of bone not unfrequently result in necrosis, the injured portion being killed either through separation from the rest of the bone, or through failure of the periosteum and the medulla to supply nutriment to the osseous tissue. Professor Heincke holds, however, that even completely detached osseous fragments do not always die, but that they sometimes form sound union with the callus thrown out at the seat of fracture. Severe contu-